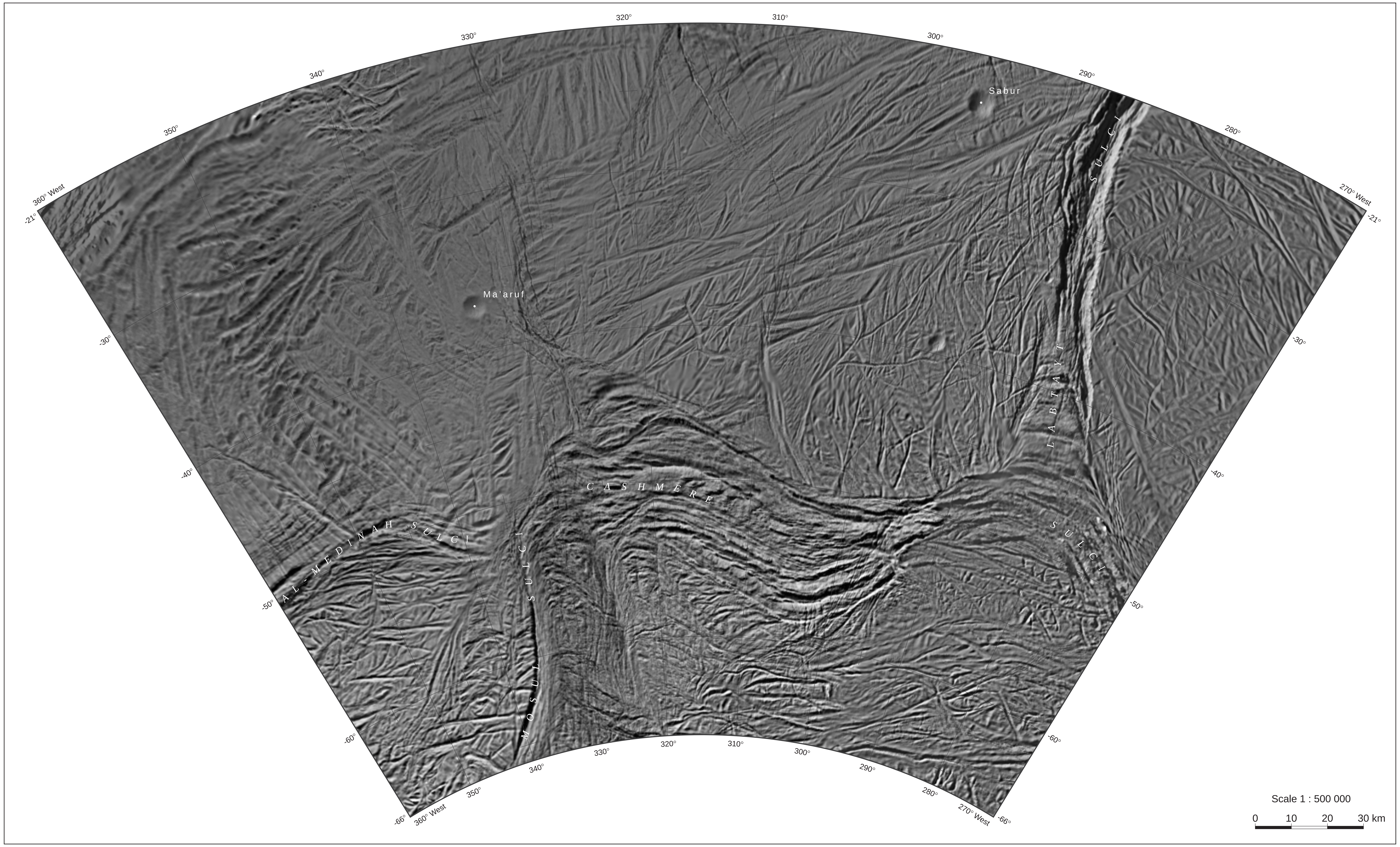
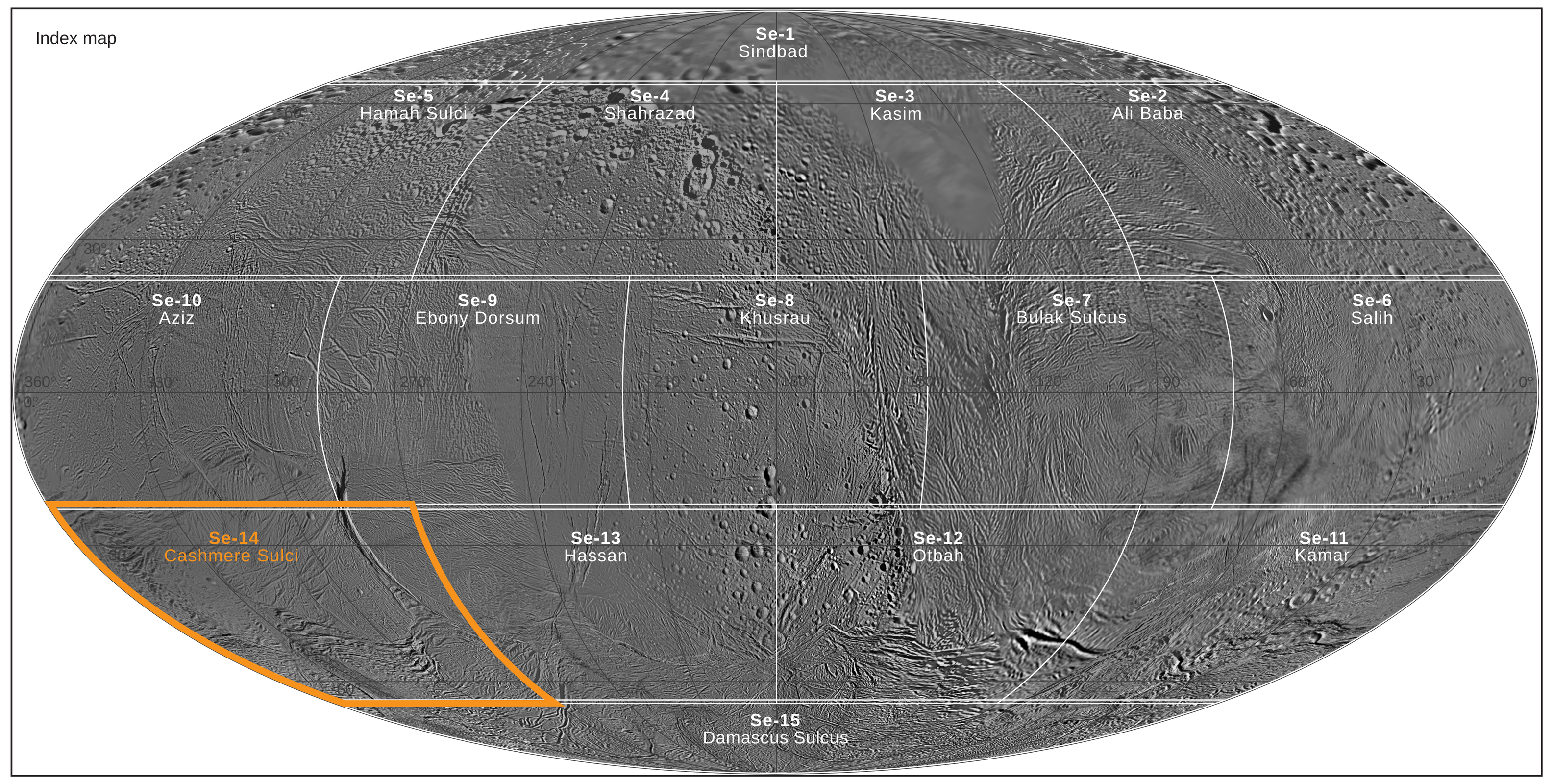
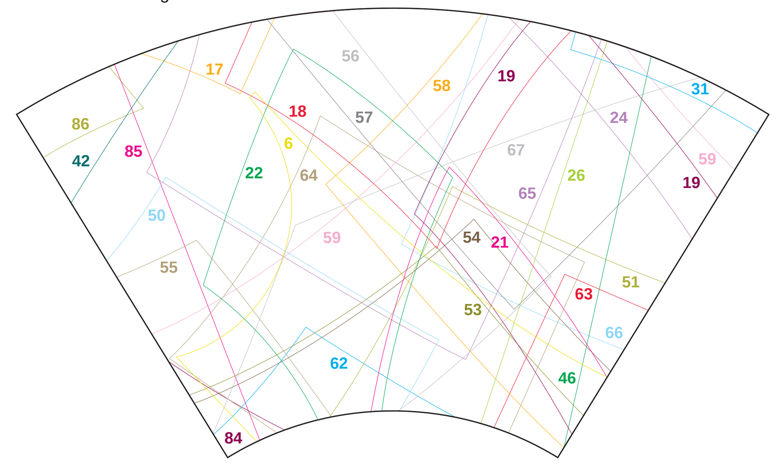
Cashmere Sulci



Index map



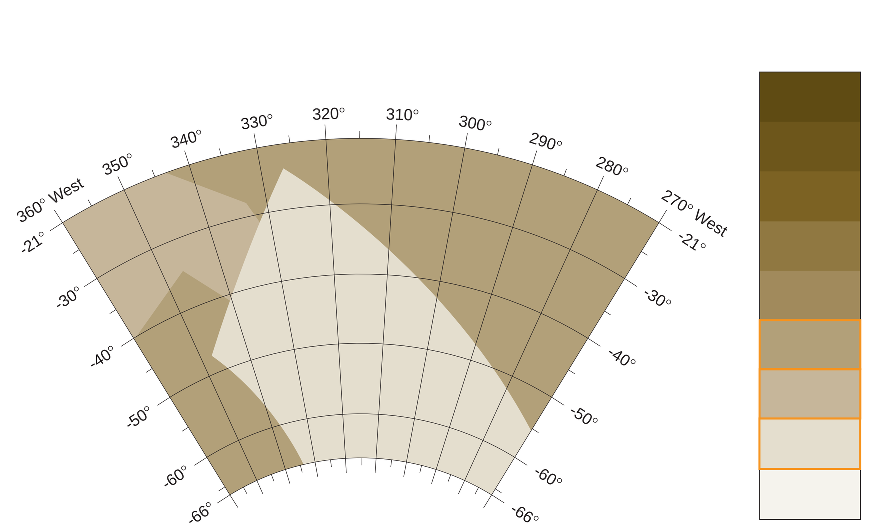
Index of Cassini images



6	N1500061390	42	N1500068930	59	N1602275201
17	N1487300648	46	N1584051633	62	N1604167805
18	N1487300854	50	N1597183548	63	N1604167982
19	N1487301032	51	N1597183748	64	N1604168160
21	N1487301386	53	N1602274088	65	N1604168315
22	N1487301590	54	N1602274348	66	N1604168525
24	N1487300107	55	N1602274610	67	N1500050692
25	W1487299765	56	N1602274753	84	N1637466149
26	N1489047359	57	N1602274900	85	N1637470054
31	N1489048394	58	N1602275039	86	N1637465942

Image 25 covers the whole sheet.

Resolution of the images



GENERAL NOTES

This map sheet is the 14th of a 15-quadrangle series covering the entire surface of Enceladus at a nominal scale of 1: 500 000. The source of map data was the Cassini imaging experiment (Porco et al., 2004)[1,2].

Cassini-Huygens is a joint NASA/ESA/ASI mission to explore the Saturnian system. The Cassini spacecraft is the first spacecraft studying the Saturnian system of rings and moons from orbit; it entered Saturnian orbit on July 1st, 2004.
The Cassini orbiter has 12 instruments. One of them is the Cassini Imaging Science Subsystem (ISS), consisting of two framing cameras. The narrow angle camera is a reflecting telescope with a focal length of 2000 mm and a field of view of 0.35 degrees. The wide angle camera is a refractor with a focal length of 200 mm and a field of view of 3.5 degrees. Each camera is equipped with a large number of spectral filters which, taken together, span the electromagnetic spectrum from 0.2 to 1.1 micrometers. At the heart of each camera is a charged coupled device (CCD) detector consisting of a 1024 square array of pixels, each 12 microns on a side.

MAP SHEET DESIGNATION

Se	Enceladus (Saturnian satellite)
500K	Scale 1 : 500 000
-43.5/315	Center point in degrees consisting of latitude/west longitude
CMN	Controlled Mosaic with Nomenclature
2010	Year of publication

IMAGE PROCESSING[3]

- Radiometric correction
- Geometric correction
- Photogrammetric adjustment using least-square and limb-fitting techniques
- Map projection
- Photometric correction using the Hapke bidirectional reflectance function
- Processing of the mosaic

CONTROL

For the Cassini mission, spacecraft position and camera pointing data are available in the form of SPICE kernels. SPICE is a data system providing ancillary data such as spacecraft and target positions, target body size/shape/orientation, spacecraft orientation, instrument pointing used for planning space science missions and recovering the full value of science instrument data returned from missions (http://naif.jpl.nasa.gov/). While the orbit information was sufficiently accurate to be used directly for mapping purposes, the pointing information was improved using limb-fit techniques. Newly derived tri-axial ellipsoid models were used to calculate the surface intersection points. A spherical reference surface is used for map projections.

A 3-D control net was set up to correct errors in the nominal camera pointing data. The adjustment improved the computed camera pointing angles and the 3-D control net with average one sigma errors of 736 m, 335 m, 608 m for the x, y, z coordinates, respectively. Unfortunately, the control points are not equally distributed over Enceladus' surface due to missing stereo data around the prime meridian. The improved pointing data were used to calculate a medium-resolution, controlled mosaic. Finally, the high-resolution mosaic calculated as described above was registered on the controlled mosaic to improve its global accuracy and feature definition.

The longitude system according to Davies and Katayama (1983)[4] and adopted by the IAU/IAG (International Astronomical Union/International Association of Geodesy) Working Group on Cartographic Coordinates and Rotational Elements as standard (Seidelmann et al., 2007)[5] is defined by crater Salih at 5° west. To be consistent with this definition, the final controlled mosaic was shifted by 3.5° to the west. This was not possible for the earlier version of the Enceladus atlas[6] since crater Salih was imaged for the first time with high resolution during the flybys in 2008.

MAP PROJECTION

Lambert conic conformal projection with two standard parallels at 58°S and 30°S
Scale is true at 58°S and 30°S
Adopted figure: sphere
Mean radius: 252.1 km[7]
Grid system: planetographic latitude, west longitude

NOMENCLATURE

Names are suggested by the ISS-Camera-Team and approved by the International Astronomical Union (IAU). For a complete list of IAU-approved names on Enceladus, see the Gazetter of Planetary Nomenclature at http://planetarynames.wr.usgs.gov/.

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Image processing: Hoffmeister, A., Roatsch, Th., Scholten, F., Matz, K.-D.
Cartographic production and design: Kersten, E., Wählisch, M.

We greatly appreciate helpful discussions with Blue, J. and Kirk, R. (USGS).

EDITOR

German Aerospace Center (DLR), Institute of Planetary Research, Roatsch, Th.
Please send comments, suggestions, and questions to Thomas.Roatsch@dlr.de.

DLR German Aerospace Center